Administrative Problems and Solutions in Screening for Gonorrhea

A GONORRHEA CULTURE PROGRAM directed at high-risk women was begun in the District of Columbia in 1969. This program was limited in scope and chronically plagued by severe shortages in manpower and supplies. Also, the only facilities participating were components of the Department of Human Resources or the Department of Corrections of the District of Columbia Government.

When early in 1972 the Department of Health, Education, and Welfare made available to the States grant funds that were earmarked for the control of gonorrhea through education and extensive screening of asymptomatic women, the District's Department of Human Resources received a grant for this purpose through the Center for Disease Control. Funds from this grant enabled the Department to provide supplies and services to public and private providers of venereal disease services and removed the financial barrier that had previously hindered citywide venereal disease screening operations. The Community Health and Hospitals Administration (CHHA) of the Department of Human Resources thereupon drew upon previously acquired experience and the skeletal network already in existence and began to build a complete system for gonorrhea control, including education, screening, reporting, and followup. This program became operative in July 1972.

An intensive educational campaign was waged throughout the Washington Metropolitan Area that has broken the circles of fear, apathy, and shame surrounding venereal disease. The public at large and the health professionals have begun to show a willingness to discuss venereal disease and to accept the screening process. The educational component of this overall drive has been reported elsewhere (*1*). Our purpose here is to examine the major problems that the Community Health and Hospitals Administration encountered in establishing a gonorrhea screening operation and the solutions that were devised. A quick re-

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view of the results achieved may serve as an evaluative index of these efforts.

Conceptual Model

The overall objectives of the District's gonorrhea screening program is to break the chain of transmission of the disease by identifying and treating asymptomatic carriers, who primarily are women. Ideally, to achieve this objective a cervical culture for *Neisseria gonorrhoeae* should be taken every time a woman has an examination at a medical facility, public or private.

A gonorrhea screening program has three major components: an intake point, a laboratory facility, and a control center (see chart).

Under ideal conditions the intake point should be able to handle the following functions:

1. Collection of specimens, usually a swab from the cervix. Occasionally rectal and throat swabs are taken.
2. Initial processing of the specimen, which includes inoculation to the culture medium and initial incubation
3. Followup of screenees whose cultures are reported to be positive
4. Treatment of patients
5. Health education and information directed at patients and their contacts
6. Reporting of all these activities to the control center.

Intake points may vary from the offices of private physicians to the outpatient departments of large hospitals and may include group practices, neighborhood health centers, university and college health clinics, public venereal disease clinics, free clinics, and the facilities of departments of correction.

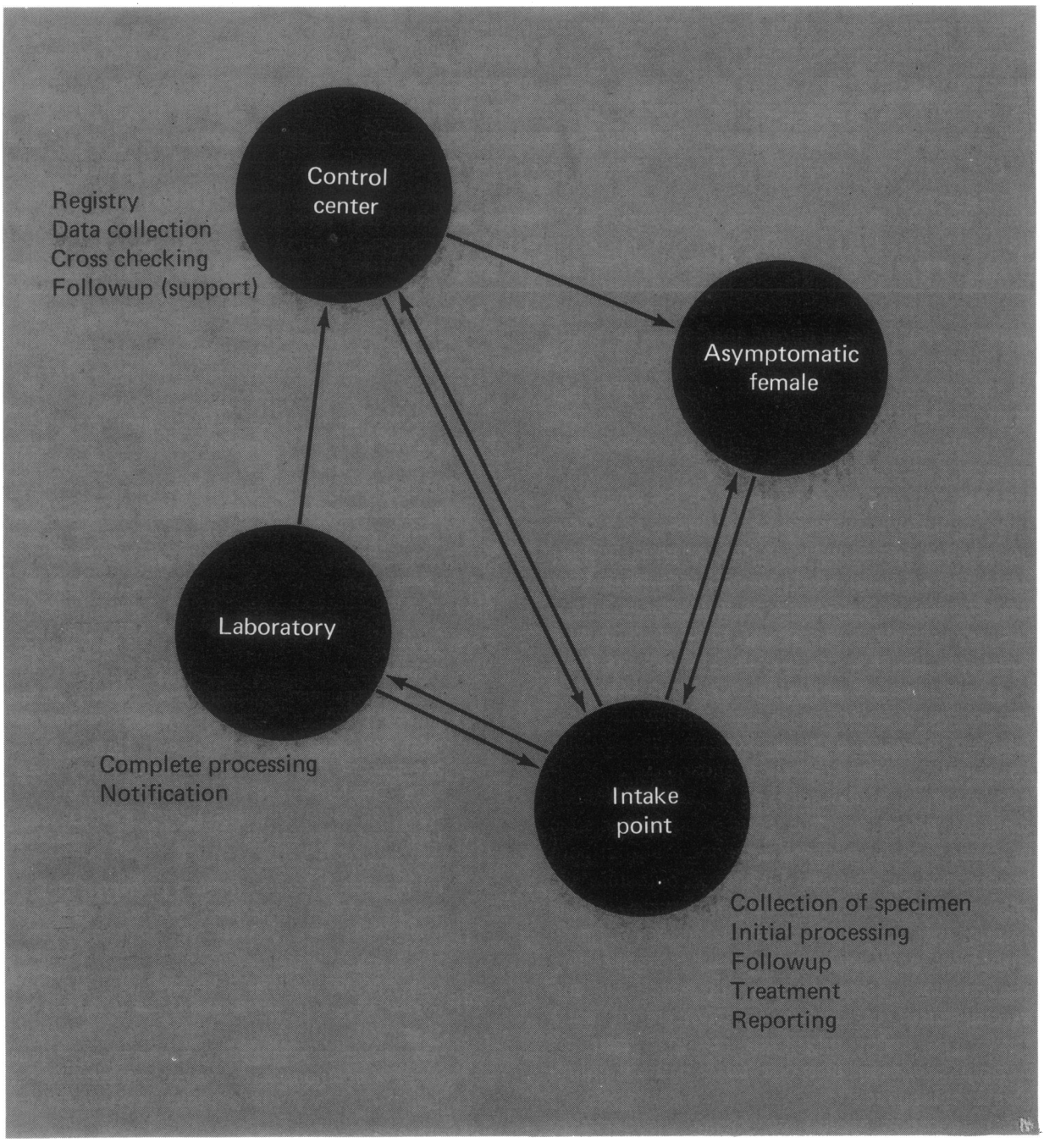
The laboratory should provide (*a*) complete processing of the specimen and final identification of growth and (*b*) notification to the parties concerned of the test results. The control center should provide for (*a*) a central registry for gonorrhea cases; (*b*) the collection, compilation, and initial tabulation of all pertinent data; and (*c*) records research and the initiation of followup.

Problems in Implementation

Implementation of the D.C. gonorrheal screening effort was begun at the clinics operated by the Department of Human Resources and at other facilities with which the Department has smooth, cooperative arrangements. From the outset several problems of varying complexity were identified.

Personnel. An initial survey of prospective intake points revealed that physicians, nurses, clerks, and laboratory technicians were already performing at what they considered to be their

Model of gonorrhea screening operation



maximum capacity. The city's central laboratory was not prepared to absorb the projected increase in the volume of specimens that would result from the gonorrhea program. This hurdle, however, was cleared by adding a few positions and indoctrinating, motivating, and sometimes redirecting the existing staff.

Almost all personnel at the intake point lacked knowledge of the natural history of gonorrhea, its causative agent, and the requisite culturing techniques. Therefore, in several onsite training sessions, personnel of CHHA's Venereal Disease Epidemiology Section stressed the proper procedures for collecting specimens and for inoculating, labeling, and incubating the medium. They made frequent spot checks of procedures and dis-

cussed results with the staff members concerned.

The attitudes of the staff toward venereal diseases received attention at the highest level. The director of the Department of Human Resources, the administrator of the Community Health and Hospitals Administration, and all other high officials of the Department consistently emphasized the importance that they attached to the venereal disease control efforts. The message was carried to every employee, and the response was gratifying.

Materiel. During the initial phase of the screening operation, procurement of supplies was difficult. It took some time to establish a proper routine for maintaining a continuous flow of selective culture media, disposable specula, gloves, and canisters, and even of candles and matches. The requisite incubators were not delivered by the manufacturer until several months after the initial order for them.

Pickle jars were used to store petri dishes after inoculation. To create an atmosphere in the jar with sufficient concentration of carbon dioxide (CO_2), a candle had to be lit, and the jar properly closed every time a culture was stored. Many technicians burned their fingers in the process. With the purchase of long fireplace matches this problem was solved. Suitable pickle jars with large openings, however, were not easy to find despite the cooperation of many restaurants and delicatessens. Also, such jars hold only 10 to 12 petri dishes each, and normal-sized incubators will hold only 2 jars at a time. This difficulty was overcome by replacing the pickle jars with a stainless steel box for the petri dishes; such a box holds from 10 to 12 cultures and occupies half the space of a pickle jar.

Policies and Procedures

Creation of a unified screening program posed several decision-making and procedural difficulties, none of which was easily overcome.

Processing of cultures. Ideally, each intake point should have full capabilities for processing cultures and identifying growths. Proximity of these capabilities to the attending staff and outreach workers saves valuable time and effort. From the outset, however, circumstances appeared to be driving us in the opposite direction from these goals.

Not only were properly trained technicians not available at most public intake points, but the existing personnel were also reluctant to assume additional responsibilities. The widespread shortage in qualified manpower resulted in a continuous lack of coverage at these clinics. Technicians were sometimes drawn from other areas, and at other times clinics went unattended. Obviously, systematic screening cannot be carried out with such erratic personnel coverage.

In the few clinics in which incubation was undertaken, the procedures and criteria varied widely from one site to another so that the results were somewhat unreliable. The staffs of these clinics, realizing their own handicaps, chose to send the cultures that they found to be positive to the central laboratory for final confirmation. To make this situation more complex, none of the public clinics had one designated person who was responsible for the followup and reporting of positive results. These basic problems convinced everyone concerned with gonorrhea screening of the necessity for the central processing of cultures for all the public clinics.

Two centrally located points, the District's central laboratory and the Northwest Health Center, were therefore selected as the primary processing centers. These two facilities had the qualified manpower and the proper logistical support to sustain uniform, uninterrupted, high-quality screening efforts. Almost all of the intake points fed their cultures into these two centers. Exceptions were granted to those intake points that had demonstrated they had the technical capability to process their own specimens properly.

Transportation. The key to success with centralized processing is an efficient and reliable pickup and delivery service. Personnel at intake points should incubate cultures overnight whenever possible. The availability of Transgrow culture media has made screening possible on Friday afternoons, evenings, and weekends and at points where incubation is not feasible. In each clinic petri boxes are to be deposited in a designated location for pickup at a given time, along with all pertinent forms.

Use of outside agencies to supply messenger service was at first considered, but all those contacted were reluctant to enter into a contractual agreement. The Department of Human Resources' messenger service was then given this responsibility. Some messengers, however, showed re-

sistance to carrying the cultures. This resistance was overcome through intensive health education, in which the natural history of gonorrhea, its modes of transmission, and the requisite safety measures to follow in handling laboratory specimens were explained.

The messengers also had to be shown the importance of timing their services between the central facilities and the intake points. The pool of messengers in the Department was limited, and services and communications within the whole screening program were frequently disrupted. Nevertheless, with continuous emphasis on the importance of the screening program and open support for it by all concerned in the Department, we were able to alleviate this difficulty.

Currently, the Department's messenger pool serves only part of the network of intake points; a larger part is served by two health technicians hired by the Venereal Disease Control Branch, who act as combination messengers and followup community workers.

Reporting. Before the gonorrhea screening program was implemented, the whole reporting phase of the gonorrhea control effort had been haphazard. Our first step was to find an instrument to fulfill a multipurpose function—reporting and control. The instrument selected was an existing Department of Human Resources form, DHR–161, which was designed for reporting the results of laboratory examinations for gonorrhea; each form consists of three NCR (no carbon required) copies—white, green, and yellow. (A copy of this form will be supplied upon request to Khoury.)

At all intake points without laboratory capabilities, a form DHR–161 must be initiated by the clerk receptionist, attached to the patient's chart, and given to the attending physician.

After the specimen is collected, it has to be labeled. Identification of the Transgrow bottle did not pose any difficulty. On the other hand, identification of the Thayer-Martin petri dish was more perplexing, since most of the clerks at first affixed the identifying label to the cover of the dish. Because the labeled top of the dish was removed during processing, there were frequent errors in identification of the specimen until everyone was told to put the label on the bottom part of the dish. After the specimen is inoculated, a DHR–161 is attached to the Transgrow bottle with a rubber band. For petri dishes, the forms are assembled and attached to the petri box, which is picked up by the messenger service.

At the central laboratory the culture is incubated for 18 to 24 hours and then read. If no growth is seen, it is reincubated for another 18 to 24 hours and read again. If no growth is seen at the second reading, the culture is discarded. Thayer-Martin media with suspicious growth and all Transgrow bottles are flooded with oxidase before they are discarded. If growth is seen at either reading, the organisms are routinely identified by means of oxidase tests and gram stain and occasionally through sugar fermentation and identification of fluorescent antibodies.

The laboratory staff records the results of this processing on the DHR–161. The white part of the form is returned to the intake point, the green part is retained by the laboratory, and the yellow part is forwarded to the Venereal Disease Epidemiology Section, which serves as a control center.

The intake points with laboratory capabilities follow similar procedures. The reporting of results differs, however, in that the intake points send the green copy of DHR–161 to the Venereal Disease Epidemiology Section. Thus a readymade color coding system is available.

Treatment centers. Until the start of this screening effort the two venereal disease clinics operated by the Department of Human Resources were the only public clinics that treated patients for gonorrhea. None of the neighborhood health centers, the maternal clinics, or similar outpatient facilities treated this disease. Therefore, to cope with the increase in patient volume expected to result from the screening, a number of changes had to be made in the Department's clinical facilities.

Since all screening facilities of the Community Health and Hospital Administration were expected to be capable of providing adequate treatment for all their patients, CHHA's administrator requested these facilities to provide treatment for gonorrhea. Nevertheless, the clinic staffs' fears that a patient might possibly have deadly reactions from the penicillin used in such treatment deterred some of them from readily providing treatment. To overcome their reluctance these CHHA facilities were offered resuscitation equipment as well as training in the differentiation and management of penicillin reactions.

Also, upon our request, special teams from the Public Health Service came to the District to study the two venereal disease clinics. (The teams' members came from the Center for Disease control at Atlanta, Ga., and from Region III of the Department of Health, Education, and Welfare, with headquarters in Philadelphia, Pa.) Based on these teams' recommendations, changes were made in the procedure and functions of the clinic staffs that substantially increased treatment capacity.

One venereal disease clinic opened in the evening three times a week to accommodate those who preferred after-work hours, and it was an immediate success.

Uniform treatment procedures based on Public Health Service recommendations were established and adhered to by all the public facilities treating venereal disease. Private providers were urged to adopt the same procedures.

Control center. Before this screening program was begun, no central registry for gonorrhea cases existed in the District. Creation of such a registry was therefore immediately undertaken; this control center became a unit within the Venereal Disease Epidemiology Section. Followup workers were attached to this unit, and each was assigned special intake points.

All the results recorded on DHR–161 forms are forwarded to the control center. The control clerk separates the forms by intake point and then by positive results, no growth, or overgrowth. Intake points that process their own cultures dispatch DHR–161s to the center only for their positive cultures; they are asked to provide a monthly grand total of all cultures processed in the facility.

Negative results are filed; no other action is taken. A high rate of overgrowth usually triggers an inquiry into the techniques used for handling specimens or the sterility of the selective media. Several hundred culture plates were thus proved to be contaminated before their inoculation, and corrective measures were taken at the source. If the selective medium is assumed to be sterile, such a high rate might indicate a faulty technique in collection or inoculation, or in both procedures. The rate of overgrowth is frequently used as an index for evaluation.

Positive cultures are checked against the files for reports of current morbidity or of duplicate cultures. If no information is found in the record and the intake point does not conduct its own followup, an epidemiologic report is initiated and assigned to the community worker covering that intake point. Because the form used nationally in syphilis epidemiology (HSM9.2936 CDC) was found to be a useful instrument, it was adopted for the epidemiologic report.

The personnel of intake points that conduct their own followup are questioned by the community worker to establish the patient's status. The worker routinely offers assistance in getting unresponsive patients to the intake point or to another facility for treatment, and such offers are frequently accepted.

Each case remains open until a disposition is reached. One copy of the HSM–9.2936 is filed at the control center, and the intake point is provided with one copy. This arrangement provides specific data, which are placed in the patient's medical folder for future reference. A morbidity report is completed on all patients brought to treatment. Final statistics are based on completed morbidity reports and not on any intermediary action.

Results and Discussion

This special gonorrhea screening effort started officially in the District of Columbia on July 1, 1972. By the end of the month 1,971 cultures had been collected from 16 intake points; the venereal disease clinics contributed 30 percent of the total. In June 1973 a total of 9,254 cultures were collected from 53 intake points, and the venereal disease clinics contributed only 8.0 percent of the total. As anticipated, the rate of positive cultures decreased from 12.0 percent in July 1972 to 5.0 percent in June 1973, as the rate of cultures provided by the nonvenereal disease clinics increased. During these 12 months a total of 72,242 gonorrhea cultures were processed, of which 4,486 (6.2 percent) were positive.

Compared with the national averages for the fiscal year 1973 (*2*), these results show that the positive rate is higher than the national average of 4.9 percent. The District of Columbia venereal disease clinics yielded a positive rate of 22.7 percent, which is also higher than the national average of 18.9 percent for venereal disease clinics.

The target population in gonorrhea screening is comprised of women aged 15 to 44, and in 1970

the District of Columbia had 213,405 women in this age group (3). Generally speaking, our screening program reached one of every three women in this target group.

A widely publicized index of success in gonorrhea screening is the ratio of women to men treated and reported. Despite the large increase in the District of Columbia in the total number of cases reported (41.5 percent), and particularly in the total number of women screened, treated, and reported, this index failed to improve substantially. Apparently men responded as well as women did to the control efforts, as the percentages of patients of each sex with reported gonorrhea cases in the fiscal years 1968–73 show.

Fiscal year	*Percentage of men*	*Percentage of women*
1968	76.1	23.9
1969	73.8	26.2
1970	73.1	26.9
1971	79.3	20.7
1972	78.4	21.6
1973	71.3	28.7

These results may provide the basis for a review of the absolute validity in this context of the female-to-male ratio as an index of success in gonorrhea screening.

Another pertinent question is whether this wide screening operation had any effect on the age profile of these patients in whom gonorrhea was detected, reported, or both. Initial results, however, indicate that the age distribution in the District of Columbia of the patients detected, reported, or both, has remained similar to that seen in previous years. Between fiscal years 1968 and 1972, women 15 to 24 accounted for three of every four D.C. women reported as having gonorrhea (72-75 percent). During the first 6 months of fiscal 1973, this age group accounted for 68.5 percent of the positive results detected through the screening program and for 71.7 percent of all the women reported as having gonorrhea.

Although gonorrhea screening in the District of Columbia proved to be a tedious operation, it was one that progressed to rather complete success, thanks to careful planning and execution and the enthusiastic support of all concerned.

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KHOURY, SAMI A. (Department of Human Resources, District of Columbia), and JOYNER, LINWOOD C.: *Administrative problems and solutions in screening for gonorrhea. Health Services Reports, Vol. 89, May–June 1974, pp. 286–292.*

Citywide screening for gonorrhea was started in Washington, D.C., on July 1, 1972. Before the screening could be initiated, however, several difficulties pertaining to personnel, supplies, equipment, policies and procedures, and transportation had to be overcome. Two laboratories were selected to process most of the *Neisseria gonorrhoeae* cultures received from the providers of venereal disease services participating in the screening program. A control center, to which community workers were attached, was established in the Venereal Disease Epidemiology Section of the D.C. Department of Human Resources.

By the end of June 1973, there were 53 intake points participating in the screening, and 72,242 cultures had been processed. The overall rate of positive cultures was 6.2 percent. This intensive gonorrhea screening operation, however, failed to change substantially the ratio of women to men treated and reported, although there was a 41.5 percent increase in the total cases reported as compared with fiscal year 1972. Men responded as well as women did to the gonorrhea control efforts.